hp industry standard servers

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integration note TC021205IN

upgrading to Novell NetWare 6 on ProLiant servers

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abstract

This integration note provides requirements and guidelines for upgrading Novell NetWare 4.x and 5.x to NetWare 6 on ProLiant servers. More specifically, we discuss the following four topics:

- features and enhancements of Novell NetWare 6
- comprehensive upgrade plan
- upgrading to Novell NetWare 6
- post-installation tasks

This integration note specifically covers an in-place upgrade from NetWare 4.x or 5.x to NetWare 6.

Note: HP highly recommends that you read this integration note before proceeding with the upgrade process.

symbols in text

The following symbols can be found in the text of this document:

⚠ **CAUTION:** Text set off in this manner indicates that failure to follow directions could result in damage to equipment or loss of information.

IMPORTANT: Text set off in this manner presents clarifying information or specific instructions.

💡 Text set off in this manner contains tips that make it easier to perform a certain task.

Note: Text set off in this manner presents commentary, sidelights, or interesting points of information.

introduction

Novell has taken the NetWare 6 operating system (OS) to even higher levels than its previous best-of-breed solutions. NetWare 6 supports a maximum of 32 processors and 64 gigabytes (GB) of RAM per server. In addition, enhancements in Novell Storage Services (NSS) allow support for volumes up to 8 terabytes (TB) in size, with millions of files open simultaneously.

NSS also decreases volume mount times to seconds regardless of volume size, even after a server failure. NetWare 6 (except Novell Small Business Suite 6) includes Novell Cluster Services (NCS) with a two-node license. Additional cluster licenses can be purchased from Novell to create up to a 32-node cluster.

Novell has also included new applications such as Apache Web Server for NetWare, iFolder, iPrint, and Native File Access with NetWare 6, making it attractive even to those customers who have not traditionally used NetWare in their infrastructure. Brief descriptions of each product are outlined below.

- **Apache Web Server** is now supported on NetWare 6. The most popular web server runs on the world's most stable and secure Intel-based NOS. Novell has also included a migration utility to allow web applications currently running on IBM WebSphere for NetWare 5.x to be ported to Apache for use with NetWare 6.

- **iFolder** allows secure file access and synchronization for today's increasingly mobile workforce. Any workstation with a web browser and an Internet connection will be able to access the iFolder server, allowing the user immediate access to all their files.

- **iPrint** is the Novell implementation of the Internet Printing Protocol (IPP) and is used in conjunction with Novell Distributed Print Services (NDPS). A user who needs access to a printer simply accesses the iPrint web page. Depending on the implementation, the user may select a printer from a list, or from a map of the floor plan so that printers are easily located. iPrint includes a tool to assist administrators with importing the map files for the web page. Once the printer is selected, the user will authenticate to eDirectory and the printer driver is automatically installed. iPrint is great for users who travel from location to location within a corporation.

- **Native File Access** eliminates the need to have any Novell Client software installed on Windows; Macintosh, or UNIX workstations that require access to NetWare 6 servers. With Native File Access, NLM's run on the NetWare 6 server that allow the workstation to attach to the server via the workstation's native method: CIFS for Microsoft clients, AFP for Macintosh clients and NFS for Unix clients.

NetWare 6 also includes additional tools for server administration such as iManager, iMonitor, and Remote Manager. In addition, Console One and the server GUI (graphical user interface) have been enhanced to include many of the administration tasks that previously had to be done from the server console using NWCONFIG.

This integration note will detail the features of NetWare 6 that ProLiant servers optimize. Next, the server is prepared for the upgrade, including hardware requirement verification; backing up your files and NDS; gathering all required software, documentation, and licenses; locating the latest utilities, drivers, and support packs; and preparing the target server.

Step by step procedures for the OS installation are outlined using the tools provided on the NetWare 6 media. Finally, post-installation tasks such as installing additional products are addressed.

Novell NetWare 6 features and enhancements

Novell NetWare 6 and ProLiant servers provide the most manageable, reliable, highest-performing server platform available. Together, they turn an industry-standard server into a high-performance Internet powerhouse providing a robust platform for developing and deploying open, web-based applications. By building web applications on top of a proven directory, companies maximize resources and reduce both administrative and networking costs.

Features of Novell NetWare 6 are described in Table 1 below.

Table 1. features of Novell NetWare 6

feature	description
Additive model	Allows a customer to add servers and/or upgrade individual servers without a complete environment change.
SMP scalability	With improved performance, takes advantage of multi-processor scaling up to 32 processors.
Novell Storage Services 3.0	New default for all volumes including SYS:. Provides seamless, scalable, flexible, 64-bit file storage and management system. Each volume can be as large as 8 terabytes and can be manipulated without disrupting the work of users.
NetWare Remote Manager	Allows users to remotely monitor NetWare servers through most Java-enabled Web browsers.
NetWare Web Access	Provides secure access to file, print, and e-mail services via Web browser without client software or VPN.
eDirectory 8.6.x	Novell Directory Services has evolved into eDirectory. eDirectory is not only cross-platform, but also OS independent and provides a solid software foundation for secure, scalable eBusiness applications and services.

comprehensive upgrade plan

When considering upgrading your server to a more powerful operating system, it is important to evaluate your existing hardware components. This evaluation is a necessity when upgrading to NetWare 6 due to applications such as eDirectory, iFolder, Apache Web Server, and IBM WebSphere, which require increased amounts of RAM and storage to run at peak performance.

To ensure a smooth upgrade, prepare a comprehensive upgrade plan. Preparation avoids confusion and frustration, insufficient hardware or hardware conflicts, data loss, and installation delays.

At a minimum, an upgrade plan should include these pre-installation tasks:

- check minimum hardware requirements and gather appropriate software, licenses, and support documentation
- check for the latest drivers, utilities, support packs and OS patch list
- back up your current system
- prepare your network and your server
- upgrade to NetWare 6

check minimum hardware requirements

HP and Novell work closely to develop compatible software and hardware products that are thoroughly tested on ProLiant servers and StorageWorks products. For a complete listing of Novell certified ProLiant servers as well as checking compatibility requirements for your adapters, controllers, drive arrays, and other devices that support NetWare 6, see the Novell website at developer.novell.com/nss/nss_advanced_search.jsp, then type in **HP** or **Compaq** at the search box, and click **Go**.

Table 2 lists the minimum hardware requirements and the Novell preferred requirements for NetWare 6.

table 2. Novell NetWare 6 minimum and recommended hardware requirements

component	hp minimum requirement[1]	Novell preferred requirement
Processor	700 MHz Pentium III, 2 Processor Capable[1]	4-way 1-1.5 GHz Pentium IV recommended
RAM	256 MB RAM (Base OS)	512 MB RAM
DOS partition on hard drive	200 MB, 1 GB recommended	1 GB recommended
SYS Volume space	4 GB default, 2 GB minimum	4 GB recommended
Bus	EISA/PCI	
Display adapter	Super VGA	
Network board	One or more	
Bootable CD-ROM drive	Able to read ISO 9660-formatted CD-ROMs (and support the El Torito specification)	
Media	3.5-inch diskette drive and a CD-ROM drive	
Mouse/Keyboard	Serial, USB[2], PS/2, Microsoft, or Logitech bus mouse and keyboard (if running X-windows.)	
Note 1: Minimum hardware requirements are more stringent than the Novell minimum requirements.		
Note 2: USB is not native to NetWare 4.x or 5.x releases and should be used <u>only</u> after upgrading to NetWare 6.		

gather appropriate software and support documentation

Before beginning an upgrade to NetWare 6, gather all required HP support software. SmartStart 5.30 or later contains all the latest drivers and utilities from HP necessary to support your server. Additionally, the Management CD-ROM Release 5.30 or later contains Insight Manager 7, all of the Management Agents, and the Survey Utility providing easy monitoring of your servers.

If you do not have SmartStart 5.30 or later, you can download the ProLiant Support Pack for Novell NetWare bundle, ROMPaqs, and other support drivers and utilities from the HP website. See Tables 3 and 4. Earlier versions of SmartStart do not contain the drivers required for NetWare 6.

The Novell Installation Media Kit accompanies your copy of the OS and contains the following items to help you successfully install and implement NetWare 6:

- NetWare 6 Installation CD-ROM
- NetWare Client Installation CD-ROM
- NetWare 6 Documentation CD-ROM
- NetWare 6 License/Cryptography diskette (includes DOS 7)

A blank diskette for backing up the NCF files of your server will also be required.

check for the latest drivers and utilities

Drivers and utilities for NetWare 6 are packaged in the ProLiant Support Pack (PSP) for Novell NetWare contained within the ProLiant Essentials Foundation Pack (see Table 3).

PSPs for Novell NetWare are also available from the HP Server Software Download Center website at h18000.www1.hp.com/support/files/server/us/locOsCat/66.html.

table 3. supported ProLiant value-add software for Novell NetWare 6

item	description
Array Configuration Utility	Setup program for HP array controllers to configure physical drives attached to the controller into arrays and logical drives that the OS uses
Array Diagnostic Utility	Diagnostics for HP drive arrays
Options ROMPaq	Program to update the onboard ROM on all HP options that support *flashing* in order to take advantage of expanded capabilities
System Configuration Utility	Configuration tool for the server and its expansion boards **Note:** Newer servers use the ROM-Based Setup Utility and do not require the System Configuration Utility.
Systems ROMPaq	Program to update the system ROM in all ProLiant servers that support flashing in order to ensure that the server can use all the capabilities of new hardware
ProLiant Support Pack for Novell NetWare	Collection of the latest drivers, utilities, patches, and other information for enhancing NetWare 6 operations on ProLiant systems; includes installation instructions
SmartStart	GUI program to guide you through the setup of your server hardware and operating system

HP also provides customers with the ability to purchase the ProLiant Essentials Foundation Pack, which includes SmartStart, via a subscription. SmartStart contains the latest management and support software. More information about this subscription service, including an online order form, can be obtained h18000.www1.hp.com/products/servers/proliantessentials/foundationpack/index.html

Drivers in one version of SmartStart may be incompatible with the drivers in the next release. Because new releases of drivers and utilities flow through the distribution channels at different rates, check the Novell website, www.novell.com/ and the HP website, www.hp.com for the latest drivers and utilities.

For a complete list of locations for important HP drivers and utilities, see Table 4.

table 4. location of device drivers and utilities

software	location
Array Configuration Utility	SmartStart CD and online at h18000.www1.hp.com/support/files/server/us/download/15737.html
ROMPaqs and utilities index	SmartStart CD and online at h18000.www1.hp.com/support/files/server/us/locOsCat/66.html
SmartStart ProLiant Essentials Foundation Pack (contains SmartStart)	Distributed with new servers
	Subscription Service: h18000.www1.hp.com/products/servers/smartstart/index.html
System Configuration Utility	SmartStart CD and online at h18000.www1.hp.com/support/files/server/us/download/13227.html
PSP for Novell NetWare	SmartStart CD and online at h18000.www1.hp.com/support/files/server/us/download/15717.html

Read the text file accompanying the software for installation instructions. Be sure to read any documentation accompanying each driver or utility to ensure its compatibility with your new NetWare 6 operating system.

check for the latest support pack and OS patch List

Obtain the correct Novell Support Packs or designated files to successfully upgrade your NetWare 5.x to NetWare 6. Before upgrading to NetWare 6, the following Novell Support Packs must be applied to the target server(s):

- NetWare 4.2 – Support Pack 8 or later
- NetWare 5.0 – Support Pack 6 or later
- NetWare 5.1 – Support Pack 2a or later

Note: Ensure that a reliable backup exists prior to installing the latest Novell Support Pack. The backup option provided by the Novell Support Pack install will not work if the server cannot be rebooted or the volumes do not mount.

There are a number of additional OS patches, workarounds, additional features, and newer versions of other features contained in the Novell Minimum Patch List at the website, support.novell.com/produpdate/patchlist.html.

Check the Customer Advisories for Novell NetWare 6 at the HP reference library.

Note: HP recommends careful review of all documents before proceeding with the installation.

backup your current system

There is always a chance that data can be lost or corrupted during an upgrade, so perform a full backup of all files and directories on the NetWare server using a NetWare NDS-aware application. Backups may be stored on any of the following:

- removable media (for example, cartridge tape)
- a file that can be transferred over the network
- another system on the network

Some third-party backup applications have the ability to compare the contents of the tape backup to the disk backup. It is a good idea to do a full restore of the backup to verify the backup is reliable. After the data is backed up, record current hardware and firmware configuration settings from the .NCF files onto a blank diskette. These settings may be required if a restore is necessary. When porting software applications to the new system, contact the appropriate vendor for instructions.

upgrading to Novell NetWare 6

There are two options available for upgrading Novell servers. NetWare 6 may be installed through a Standard In-Place Upgrade or the Accelerated Upgrade. Before installing NetWare 6, ensure the latest Novell Support Pack and ProLiant Support Pack have been applied.

prepare your network

Note: Novell requires that the server with the Master NDS replica of the root partition be upgraded to NetWare 6 first.

1. From a client workstation, insert the NetWare 6 CD-ROM and from the root of the CD-ROM, start **NWDEPLOY.EXE.**

2. Open the Network Preparation folder; read the Overview and Backup data documents. Perform the preliminary steps listed.

   △ **CAUTION:** Do not proceed until a complete backup has been performed and verified, including NDS data, of the server to be upgraded.

3. From the Network Preparation folder, select **Step 2 - View and Update NDS version**.

   - Enter the NDS tree or container to be updated, or browse to the NDS tree or container to be updated.

   - Authenticate (login) to the NDS tree when prompted with a User ID that has admin rights to the NDS tree or container to be updated.

   Select the appropriate radio button:

   - Find servers at the root or selected container only.

   - Include subordinate containers.

     When the upgrade process is complete, select **Exit**. Wait for the main NWDEPLOY screen to reappear.

> **Note:** It may take up to a minute, and there will be no indication that the system is still processing data.

4. From the Network Preparation folder, select **Step 3 - Prepare for NDS eDirectory**.

   - Enter the NDS tree name or browse to the NDS tree to be prepared. A list of servers with NDS replicas will be listed.

   - Select the server to process.

   The procedure will now begin. When the program returns the **Complete** message, select Exit. Wait for the main NWDEPLOY screen to reappear.

> **Note:** As experienced in the previous step, the screen does not reappear and may seem like the procedure is complete, when—in fact—the system is still processing data in the background.

5. If the server to be upgraded to NetWare 6 does not have NDS 7 **AND** NSS volumes, continue to step 7.

6. NSS volumes on servers running NDS 7 must be prepared for NetWare 6. If the server to be upgraded has NSS volumes and is running NDS 7:

   - Select Prepare Server with NDS 7 and NSS volumes from the Network Preparation folder. Note that there is not a step number in the folder for this procedure. This procedure will cause the server to reboot and NDS will be upgraded to v8.5.12a.

   > ⚠ **CAUTION:** Do not run this procedure until the server is ready to be upgraded to NetWare 6. After this procedure completes, the server will be unusable until NetWare 6 is installed.

7. From the Network Preparation folder, select **Step 4 – Upgrade the Certificate Authority**.

> **Note:** This step only needs to be completed once. If there is already a NetWare 6 server in the eDirectory tree, skip to either section, NetWare 6 Standard In-Place Upgrade or NetWare 6 Accelerated Upgrade as appropriate.

8. Using the current version of ConsoleOne on the server, find the server that hosts the CA certificate.

   - Browse to the Security container, double-click the Organizational CA object, then click the **General** tab. The CA server will be listed in the Host Server field.

   - Verify the CA is v2.0 or greater.

9. From the server console identified in step 8 as hosting the CA certificate, load **NWCONFIG**.

10. Select **Product Options**.

- Select **View** or **Configure** Installed Products.

- Find the PKIS object, and verify it is at least v2.0.

  Note: If you have installed the latest Support Pack, this requirement will be met.

- Install the Client NICI on the workstation. The Client NICI can be installed from the main menu of the Novell Client CD-ROM. There are two NICI selections listed on the main menu, choose **NICI Client 2.0.2 for Windows**.

NetWare 6 standard in-place upgrade

Review the following upgrade instructions on the NetWare 6 Documentation CD-ROM:

- installing your NetWare 6 network

- overview and instructions

- upgrade to NetWare 6

Unless you have access to a second CD-ROM drive, you might want to print the documentation for reference during the upgrade.task.

To perform a standard in-place upgrade:

1. Insert the NetWare 6 CD-ROM into the server with the Master NDS replica, down the server to DOS, and then reboot the server.

2. After the server POST procedure completes, the CD-ROM will attempt to boot. Because this is a configured system, you will be prompted to either Install or Run NetWare (I, R).

3. Select **I**.

   Note: This selection is time sensitive. If you do not respond to the prompt in a timely fashion, the server will run the current version of the OS. If this happens, simply down the server and reboot the CD-ROM again.

4. You will be prompted to select the CD-ROM type (**IDE** or **SCSI**). If unsure, select Both (**B**).

5. When prompted, choose to keep the existing Boot Partition.

6. When prompted, select either **Express** or **Custom Installation** in the upper prompt, and select **Upgrade** from the lower prompt. The space bar toggles between selections; the Tab key toggles between prompts. Express will run the upgrade with minimum intervention. Custom will stop at several screens so that information can be verified. Because this is an upgrade, either selection is acceptable because no information will be changed.

7. If Custom installation was selected, verify the following information:

   - Disk Drivers
   - LAN Drivers
   - IP addresses (also IPX addresses if configured)

8. When prompted, insert the NetWare 6 license diskette and browse to the License subdirectory.

9. Select the license envelope to install.

10. Login to the NDS tree. At this time, NDS will be upgraded to eDirectory for Novell NetWare 6.

11. When prompted, select the **additional products to be installed**. Information about each product is available on the NetWare 6 Documentation CD-ROM. Products not installed at this time can be installed later using the NWDEPLOY program from a client workstation.

12. When prompted, export the Trusted Root Certificate.

13. When prompted, decide whether to allow or deny Clear Text communications with the LDAP server. Read the text in the box carefully and make the selection that best fits your security model.

14. Some products to be installed may have configuration screens. Use the Help button on those screens or the information on the NetWare 6 Documentation CD-ROM to properly complete those screens.

15. When prompted, select **Finish** to start the final file copy. After the file copy completes, and the installation cleanup is complete, follow the prompts to remove the CD-ROM and license diskette and reboot the server.

16. When the server reboots, NetWare 6 will be installed and ready for user login.

NetWare 6 accelerated upgrade

Note: There must be at least one functional NetWare 6 server in your tree to use this upgrade method.

The Accelerated Upgrade option allows upgrades to be performed two ways:

- copying NetWare 6 CD-ROM to an existing NetWare 6 server volume
- mounting NetWare 6 CD-ROM as a volume on an existing NetWare 6 server

Note: Only the OS is installed using the Accelerated Upgrade path. Additional products may be installed when the upgrade is complete by running **NWDEPLOY** (on the NetWare 6 CD-ROM) from a client workstation.

1. Copy the contents of the NetWare 6 CD-ROM to a volume on an existing NetWare 6 server, or mount the NetWare 6 CD-ROM as a volume on an existing NetWare 6 server. If you copy the files to the server, also be sure to copy the NICI license to the *License directory* at the root of this file location.

   The NICI license is on the NetWare 6 License diskette, in a subdirectory called

License. It will have an extension of NFK. After you have copied the license, rename it to NICIFK, with no file extension.

> **Note:** This license will be used during the upgrade. If you mount the CD-ROM as a volume, the license will be installed differently and will be described in the following steps.

The advantage to copying the files to a volume is that the files will be available until you choose to delete them, and that it leaves the CD-ROM drive on the source NetWare 6 server free. If your NetWare 6 upgrade will take a period of time, copying files to a volume is probably the best method.

2. From the client workstation, browse to the root of the NetWare 6 CD-ROM or file location, and run **ACCUPG.EXE**.

   If you mounted the CD-ROM as a volume on a NetWare 6 server, you will have to browse to the CD-ROM through the Network Servers container instead of through the NDS container. This is because the CD-ROM, even though mounted as a volume, is not known to NDS as a volume.

3. Authenticate (Login) to the Source server (NetWare 6 server with the OS files).

4. Select the target server from the list provided. After the target server has been selected, the NICI version and video card will be verified.

> **Note:** All servers in the NDS tree will be listed, even those already running NetWare 6. Be sure you pick the correct server from the list.

5. If the CD-ROM was mounted as a volume, you will be prompted to provide the NICI license. The NICI license is on the NetWare 6 License diskette in a directory called License. It has a file extension of NFK. Copy this file to **SYS:SYSTEM** on the target server. Afterward, rename the file to NICIFK, with no file extension. This step will need to be done on each target server.

6. After a short time, a table will be displayed with the current and required settings for several parameters on the target server. If you have applied the latest Support Pack for the target server, then most of the required settings will be met.

   You must insure, however, that the required settings for Free Space available on the DOS partition and the SYS: volume are sufficient. Ignore any messages indicating the minimum sizes for the DOS partition and the SYS: volumes are too small; only the free space is important.

7. The next screen will prompt for the following settings:

   - Reboot Server after Installation
   - Update Disk and LAN Drivers
   - Remove Unsupported DOS Utilities

   Make sure all of these boxes are marked, and select **Next.**

8. When prompted, click **Finish**.

   The installation will start. A progress box will display in the workstation.

9. When prompted, close this box. The server will reboot and the final phase of the installation will complete without user intervention. When finished, the server will reboot again.

10. After that reboot completes, NetWare 6 will be installed and ready for user login.

post-installation tasks

From a client workstation, run the NetWare 6 Deployment Manager utility (**NWDEPLOY.EXE**) located on the NetWare 6 Operating System CD-ROM. Select **Post-Installation Tasks**, and perform any of the tasks listed that are appropriate for your installation. This would include, but is not limited to, installing any additional NetWare 6 products, such as iFolder, or installing Novell Cluster Services.

web resources

In addition to hardware and software products, HP also provides information enabling you to stay current on the latest developments and assisting you in making deployment decisions.

Novell software is developed on and optimized for ProLiant servers providing unparalleled compatibility. These information products range from those with no specific operating system focus to those that address specific operating system issues and answers.

ProLiant OS Support Matrix reflects servers that are currently shipping and supported operating systems.
ftp://ftp.compaq.com/pub/products/servers/os-support-matrix-310.pdf

ActiveAnswers gives you the benefit of our experience to help manage your system and reduce the time, risks, and complexity associated with deploying solutions.
http://h18000.www1.hp.com/activeanswers/

ActiveUpdate offers proactive notification and delivery of the latest software updates. Do not waste time searching the web. Subscribe to ActiveUpdate for automatic delivery of software updates for your ProLiant servers, desktops, workstations, and portables.
h18000.www1.hp.com/products/servers/management/activeupdate/index.html

Insight Manager 7 leverages the power of the Internet to provide web-based systems management for ProLiant servers, and any HTTP, SNMP MIB2, or DMI v2.0 compliant device.
h18000.www1.hp.com/products/servers/management/index.html

SmartStart for Servers provides everything you need to get your servers up and running with full support.
h18000.www1.hp.com/products/servers/management/smartstart/index.html

Customer Advisories inform you of any known problems and workarounds. Look up information at the Reference Library. From the lists, select the category, family, and series of your product.

Press Releases and Communiqués announce the availability of new products and versions.
www.hp.com/hpinfo/newsroom/index.html?mtxs=corp&mtxb=3&mtxl=4.

Novell Partnership site contains partnership information, white papers, and event listings.
h18000.www1.hp.com/products/servers/software/novell/index.html

software and drivers website contains a complete listing of software available for download. This database is searchable by product and operating system or by category and operating system.
h18000.www1.hp.com/support/files/server/us/index.html

White Papers (complete listing) inform you of ways to optimize your environment and obtain the maximum benefit from software enhancements.
wwss1pro.compaq.com/support/home/selectproduct.asp?countrycode=1000&destination=reflib&pid=-1

summary

HP and Novell deliver unprecedented levels of integration and efficiency your business needs to thrive. HP is the leading vendor for NetWare customers worldwide with NetWare 6 running on over 1.2 million servers.

NetWare 6 allows users to work across all types of networks and operating environments as a single network. It offers superior security, scalability, and authentication services that result in lower TCO throughout the enterprise.

for more information

HP also provides information enabling you to stay current on the latest developments and assisting you in making deployment decisions. To learn more about HP and Novell, visit our website at h18000.www1.hp.com/products/servers/software/novell/index.html.

To learn more about HP, visit our website at www.hp.com.

feedback

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OSIntegrationFeedback@hp.com.